PART A: MULTIPLE CHOICE (10 MARKS)

Choose the best response in each case and place your answer in the appropriate space on your answer sheet.

1. If x = abc/d, then b equals:
   (a) acx/d (b) xd/ac
   (c) ac/xd (d) axd/c

2. 2.1×10^4 expressed as a decimal is:
   (a) 0.000 21 (b) 210
   (c) 2 100 (d) 21 000

3. Following the "Even-Odd Rule" the value 4.050 expressed to 2 significant digits would be:
   (a) 4.05 (b) 4.0
   (c) 4.1 (d) not possible

4. A laser emits red light with an average wavelength of 0.000 061 cm. In scientific notation this wavelength is expressed as:
   (a) 6.1×10^{-5} cm
   (b) 61×10^{-6} cm
   (c) 6.10×10^{-6} cm
   (d) 610×10^{-7} cm

5. Which of the following values of a measured quantity is least precise?
   (a) 0.081 mm (b) 0.81 mm
   (c) 4.81 mm (d) 48.1 mm

6. The measurement 0.003 154 8 m expressed in scientific notation to three significant digits is:
   (a) 3.15×10^3 m
   (b) 3.15×10^{-2} m
   (c) 3.15×10^{-3} m
   (d) 3.16×10^{-3} m

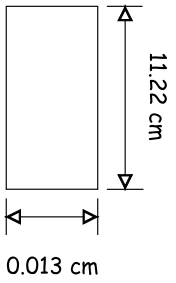
7. The quantity 2345.6 g is equal to:
   (a) 0.002 345 6 kg
   (b) 2.345 6 kg
   (c) 23.456 kg
   (d) 234.56 kg

8. What is the value of the following expression to the correct number of significant digits?

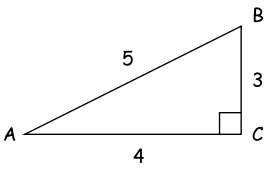
$$(2.56\times10^4\ m/s^3)\ x\ (3.2\times10^3\ s)$$

   (a) 8.2×10^7 m
   (b) 8.19×10^7 m
   (c) 8.2×10^7 m/s^2
   (d) 8.19×10^7 m/s^2

9. The length and width of a rectangle are recorded as shown. The perimeter expressed to the correct precision/accuracy is:
   (a) 22.47 cm
   (b) 22.466 cm
   (c) 0.15 cm^2
   (d) 0.145 86 cm^2



10. Sin A =
    (a) 3/5
    (b) 3/4
    (c) 4/3
    (d) 4/5



PART B: MATCH (5 MARKS)

Match the definition from the 1st column to the best term in the 2nd column and place the matching letter in the appropriate space on your answer sheet.

1. Digits known for certain, plus one estimated digit.
2. Difference between two observed values.
3. Variable that depends on the independent variable during an experiment.
4. When adding and/or subtracting, the rules for ? are used.
5. Uses combinations of fundamental units to create new units.

A) accuracy
B) base units
C) dependent variable
D) derived units
E) independent variable
F) percentage difference
G) percentage error
H) precision
I) significant digits
J) systematic error

SPH4U-R REVIEW: MATH SKILLS QUIZ#1

PART A: MULTIPLE CHOICE (10 MARKS)

1	2	3	4	5	6	7	8	9	10

PART B: MATCH (5 MARKS)

1	2	3	4	5

PART C: SHORT ANSWER (25 MARKS)

Answer the following questions in the space provided.

Factor	Prefix	Symbol
10^{9}	giga	G
10^{6}	mega	M
10^{3}	kilo	k
10^{2}	hecto	h
10^{1}	deka	da
10^{0}	----------	----------
10^{-1}	deci	d
10^{-2}	centi	c
10^{-3}	milli	m
10^{-6}	micro	μ
10^{-9}	nano	n

DON'T FORGET!!
k↔M↔G & m↔μ↔n represent steps of 3

{5} 1. Use the following chart to convert each measurement below into the given units.

A	1.0 cm	km
B	720 cm	mm
C	0.093 km	cm
D	5.0 m^2	mm^2
E	18.0 m^3	cm^3

{10} 2. ① Indicate the precision and the # of significant digits of the following measurements in the space provided.
② Round off the measurements to the correct number of digits needed.
③ Express these rounded measurements in proper scientific notation in the last column. See example.

	MEASUREMENT	PRECISION	# OF SIG. DIG.		MEASUREMENT ROUNDED OFF	MEASUREMENT IN SCI. NOT.
			NOW	NEEDED		
	63.479 m (example)	3	5	3	63.5 m	6.35×10^{1} m
A	0.004 659 m			2		
B	5 803 L			1		
C	565 g			2		
D	123 456.7 mm			3		
E	2.074 MW			3		

{10} 3. Perform the following operations, expressing the answers to the correct accuracy/precision including units.

A	$12\,cm + 0.031\,cm + 7.969\,cm$	
B	$(6.1\,m)(8.2\,m)(1.1\,m)$	
C	$(14 \times 10^{-8}\,cm^2) \div (3.25 \times 10^{-6}\,cm)$	
E	$\sqrt[3]{0.189\,m^3}$	
G	$\dfrac{(282\,g)(5.98 \times 10^{8}\,mm)(4.0\,cm)}{(7.5 \times 10^{7}\,cm)(2.62 \times 10^{2}\,g)}$	